Colicin as a Bioprotective Agent for Control of E. coli K99

Fatemeh Golestan*[1];Yahya Tahamtan[2]; Masumeh Hayate[2]; Elham Moazamian[3]

1-Department of Microbiology,Islamic Azad University, Jahrom Branch, Jahrom, Iran

2-Department of Bacteriology Razi Vaccine and Serum Research Institute-Shiraz, Iran

3-Department of Microbiology,Islamic Azad University, Science & Research, Fars Branch, Fars, Iran

fa.golestan@yahoo.com

Background & Objectives: K99 pilus antigen is one of the major adherence factors found on enterotoxigenic *Escherichia coli* (ETEC) of neonatal calves. It causes severe diarrhea in newborn calves via the production of heat-stable enterotoxin (STa).With increasing concern over the spread of antimicrobial resistance, the development of alternative to conventional antibiotics such as colicin is urgently needed. Colicin is an antimicrobial peptide produced by one strain of *E. coli* to suppress the growth of other strains of *E.coli*. The aim was to examine the control of *E.coli* k99 by the oral administration of colicinogenic *E.coli* (CEC) as probiotics in an infant mouse model.

Methods: The first control group was fed *E.coli* K99 and the second just CEC. The test group received E.coli K99 after oral administration of CEC at the variation time.

Results: Study of the results delineated that CEC has inhibitory effect against E.coli k99 and prevented death caused by STa of *E.coli* k99 in infant mice.

Conclusion : The data presented here support this claim that CEC play a significant role against *E.coli* k99. Furthermore, the study suggested colicin warrants further evaluation as a potential alternative to conventional antibiotics for use to control of *E.coli* k99.

Keywords: *E.coli* K99; Colicinogenic *E.coli*; Colicin